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**GUN-CRETE FOR PROTECTION**

**ILLUSTRATIONS**

OF

**Gun-crete Work**

*Concrete*



*How We Do It*

**EXECUTED BY**

**Cement-Gun Construction Company**  
900 South Michigan Ave., CHICAGO, ILL.



**New York**

**Atlanta**

**BULLETIN NO. 5**

## IS GUN



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WRITE TO US FOR

T. GUN CO  
900 So. M

GUN-CRETE FOR PROTECTION



## WHAT IS GUN-CRETE?

Gun-crete (or Gunite as it is also named) is "Concrete applied by the Cement-Gun process." It is composed of cement and sand of various grades and proportions.

The material is delivered into the Gun as a "dry" mixture and blown or "shot" by pneumatic pressure (in a continuous stream through a hose line) to the place of deposit. The necessary water for the hydration of the mixture is added at the moment the material rushes through the mixing nozzle.

Owing to the great force with which Gun-crete is placed, and on account of the perfect mixture and hydration, it displays qualities which puts it in a class all by itself. Gun-crete is of greatest possible density; it is "Water and Fireproof" and of extraordinary tensile and compressive strength. The force of impact expels all superfluous moisture and air, solidifies the mass and produces a bond which cannot be obtained by any other method.

This Shows How We Do It

Engineers and  
Contractors  
for  
Cement-Gun  
and  
Pneumatic  
Concrete  
Work



Contracts taken  
Everywhere  
All  
Work done  
Under  
Guarantee

## WHAT IS OUR BUSINESS?

We specialize in GUN-CRETE and other work done by pneumatic processes with the Cement-Gun or otherwise. All our work is done by Contract under Guarantee.

The pictures herein illustrate some of the work we have done recently.

WRITE TO US FOR PLANS AND ESTIMATES

### CEMENT-GUN CONSTRUCTION COMPANY

900 So. Michigan Ave., Chicago

New York

Atlanta

DECEMBER 1916





## GUN-CRETE FOR PROTECTION

### Protecting Steel Bridges Against Locomotive Gases and Rust with GUN-CRETE



New York City Subway bridge over switching yard of Long Island Ry. at Long Island City.  
Entire structure protected against deterioration by GUN-CRETE.



Colfax Larimer Viaduct in Denver. All spans over R. R. tracks protected against locomotive gases by GUN-CRETE.





## Making Steel Bridges Corrosion-Proof With Gun-crete



Rock Island Ry. Co. bridge crossing 79th St., Chicago. Entire floor system and all girders encased with GUN-CRETE.



THIS IS HOW WE DID IT →

Nickel Plate Ry. Co. bridge crossing Illinois Central R. R. Tracks at 79th St., Chicago. Bottom flanges of main girders and underside of entire floor system protected with GUN-CRETE.



← THIS IS HOW WE DID IT

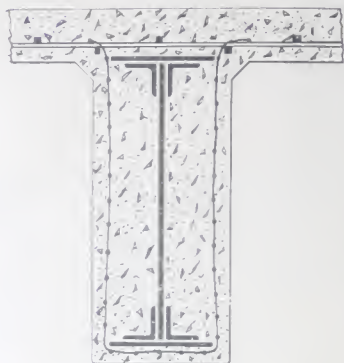
**Bridges encased by us with GUN-CRETE for protection against locomotive gases:**

Rock Island Bridge, 79th St., Chicago.  
 Rock Island Bridge, Little Rock, Ark.  
 Rock Island Bridge, Blue Island, Ill.  
 Nickel Plate Bridge, 79th St., Chicago.  
 Colfax-Larimer Viaduct, Denver, Colo.  
 Hunters Point Viaduct, Long Island, N. Y.  
 New York City Subways  
 and others.



## GUN-CRETE FOR PROTECTION

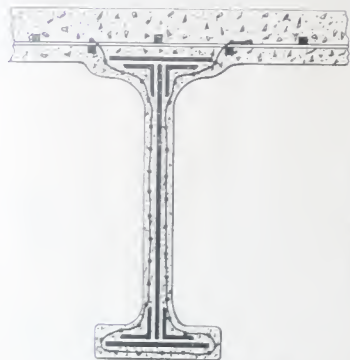
### GUN-CRETE FOR RUST PREVENTION FIRE PREVENTION



#### DON'T DO THIS

Weight per foot 1165 lbs.

It is a waste of steel to carry this useless dead load. Also the porous concrete is not impervious to moisture or gases, and the bottom flange cannot be adequately protected even by grouting with extreme care.

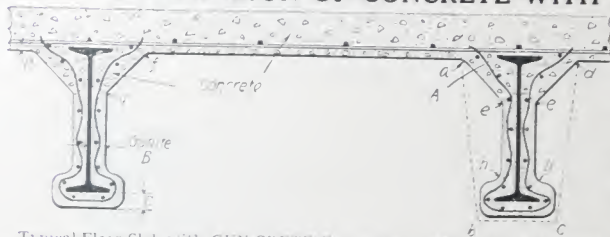


#### DO THIS

Weight per foot 320 lbs.

Omit the paint, "shoot" GUN-CRETE direct against the steel. In this way get perfect adhesion and inhibitive protection against rust. You are sure of a protection that is impervious to moisture and gases and the bottom flange is perfectly protected.

### COMPARISON OF CONCRETE WITH GUN-CRETE



The following table gives a comparison between weight and cost per running foot for several sizes of beams for the poured encasement, a, b, c, d, and the GUN-CRETE encasement, a, e, h, h, e, also standard thickness of gunite.

Typical Floor Slab with GUN-CRETE Encasement of Supporting Members

Size of beam in.	Weight of poured encasement lb.	Weight of Gun-crete encasement lb.	Per cent saved	Dimensions		
				A	B	C
8	82	38	54	1½	1¼	2
10	102	42	49	2	1¾	2
12	128	64	50	2½	1½	2
15	187	89	53	3	1½	2
18	228	94	58	3½	1½	2
20	290	122	49			



## THE FORD MOTOR CO. uses GUN-CRETE IN LARGE QUANTITIES



Picture shows  
part of engine  
room of the Ford  
Motor Company  
New Powerhouse,  
Detroit,  
Michigan.

The steel girders  
supporting the  
boiler floor above  
the engine room  
were fireproofed  
by us with  
2<sup>nd</sup> application of  
reinforced  
GUN-CRETE.

Part of engine  
room of the Ford  
Motor Co.,  
Detroit, Mich-  
igan, during  
construction.  
In order to  
prevent  
corrosion of  
steel inside of  
the enameled  
brick encasement,  
the columns  
shown were  
covered with  
one-half inch of  
GUN-CRETE  
plied direct to the  
unpainted metal.



All the steel work in this, without question one of the *Most Efficient Power Houses in the United States*, was protected with GUN-CRETE.

In addition we solved the following problems:

Lining of the Coal Bunkers and Ash Bins. Waterproofing of all Floors and Roofs.

Lining and Waterproofing over one mile of large power tunnels, etc.

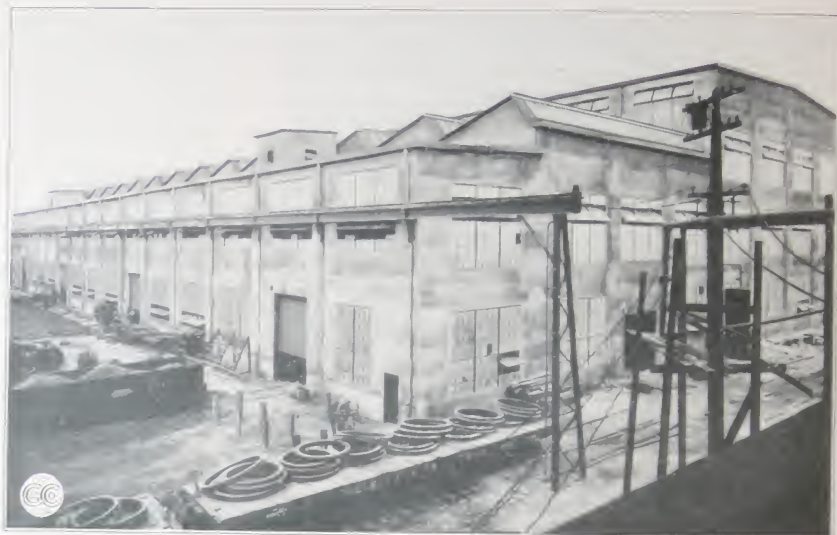
**TWELVE REPEAT ORDERS** from The Ford Motor Car Co., within two years surely  
prove satisfaction.





GUN-CRETE FOR PROTECTION

## GUN-CRETE WALL CONSTRUCTION INEXPENSIVE—PERMANENT



Machine Shop, Seaboard Air Line, Portsmouth, Va.  
This building 35 ft. x 150 ft. is built of steel framing. It is covered with 1 1/2 inch. GUN-CRETE walls.



200,000 sq. ft. of GUN-CRETE walls on the largest grain elevator ever built. South Chicago, Ill.



GUN-CRETE FOR PROTECTION



## GUN-CRETE WALL CONSTRUCTION FIRE, RUST AND VERMIN PROOF



GUN-CRETE  
WALLS AND  
ROOF  
MAKE AN  
ACID  
PROOF  
BUILDING

This steel frame building used as a sulphuric acid condenser house was originally covered with corrugated metal. At the end of 18 months the roof was gone and the metal on the side walls nearly so. The scraps of metal were removed and the entire building "shot" like here shown.

The inside of this building is at all times dripping wet with weak sulphuric acid.

At the end of two years, there is no evidence that the GUN-CRETE has been penetrated or damaged to the slightest extent.



THIS  
WILL  
NOT  
RUST  
THIS  
NEEDS  
NO  
PAINT

Warehouse of Illinois Steel Co., in St. Paul, Minn.  
Covered with 2-inch GUN-CRETE Walls



*GUN-CRETE FOR PROTECTION*

## **GUN-CRETE HOUSES FOR MIL**



*ADMINISTRATION BUILDING*



*HOSPITAL BUILDING*



*WASH HOUSES*

**INEXPENSIVE**

**QUICKLY ERECTED**

**PERMANENT**

**FIRE PROOF**

**WATER PROOF**

**VERMIN PROOF**

***ESPECIALLY DESIRABLE FOR MINE AND I***



GUN-CRETE FOR PROTECTION



# MILITARY ENCAMPMENTS



MUNITIONS WAREHOUSES

65 buildings like the foregoing erected at CANADIAN MILITARY CAMP, CAMP BORDEN, ONT. during the summer of 1916. All these buildings were covered by us with our patented GUN-CRETE WALLS AND ROOFS.



3000

GUN-CRETE

BUILDINGS

This picture was sent to us illustrating one of 3000 houses built by the British Government at Richmond Camp, Yorkshire, England.

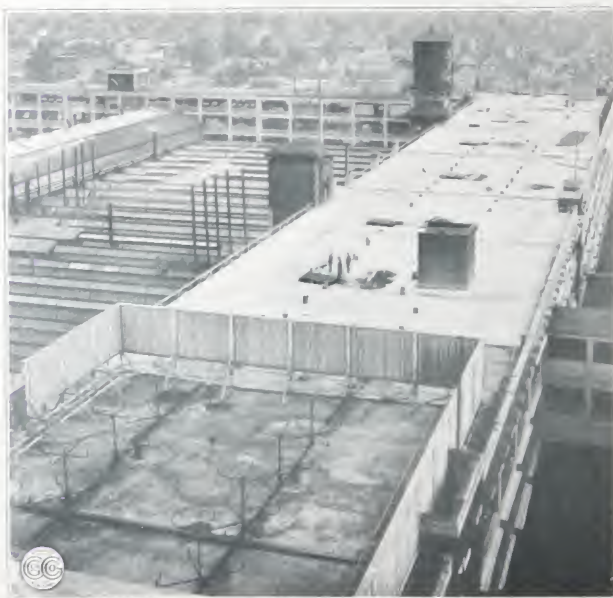
AND INDUSTRIAL TOWN BUILDINGS





## GUN-CRETE FOR PROTECTION

### Water-Proofing Reservoirs, etc. with Gun-crete



The above cut shows a reservoir at Muscatine, Iowa, 350 ft. square by 20 ft. deep, which leaked so badly that it could not be used. We applied a 2-in. waterproof GUN-CRETE blanket over the bottom and sides and made it perfectly watertight.

### Constructing Spray Ponds for Cooling Condensing Water on Roofs.

This shows the roof of Machine Shop A of the Ford Motor Co., Detroit, Michigan.

A 2-in. GUN-CRETE blanket laid over the entire Roof surface (825 x 75) allows the same to be used as a spray pond for the cooling of condensing water.



## JACKETING A DEFECTIVE BRICK STACK WITH GUN-CRETE



This brick stack, 12 ft. diameter by 125 ft. high, at a Soda Ash Plant had been so badly affected by the alkali in the air that the mortar was falling out of the joints and the surface of the brick was eaten away. We encased it with a 2½" jacket of reinforced GUN-CRETE, restoring it to more than full strength and rendering it immune to further deterioration.

## MAKING A DEFECTIVE OLD BRIDGE PIER AS GOOD AS NEW



Before Guncrcting



After Guncrcting

The outer layers of stone in this R. R. bridge pier had crumbled away, leaving it in an unsightly and dangerous condition. It had to be repaired or replaced. By GUN-CRETE Construction it was restored as shown in the lower photograph. The decayed parts were chipped away and a filling of reinforced GUN-CRETE "shot" into place. The entire work was done without interruption of Railroad traffic, it took but a short time and the pier is now as good as new and will last longer than a new pier of the same stone. The cost of the work was very low.



GUN-CRETE FOR PROTECTION

## GUN-CRETE WORK IN MINES



This picture shows a MINE SHAFT gun-creted at Hurley, Wisconsin. There were two water-bearing strata in an iron ore mine, one about 200 and the other 1100 feet from the surface. The total length of shaft affected was about 300 feet.

This picture shows a view looking upward from the lower end of the upper one of these sections, showing how we applied Gun-crete to water and fire-proof these sections and rust-proof the steel sets.

In addition to the above we have applied Gun-crete linings to the following mines:

Air Shaft of Old Ben Mining Corp. West Frankfort, Ill.	465 ft. deep
Main Shaft Alden Coal Co., Farmington, Ill.	85 ft. deep
Air Shaft Alden Coal Co., Farmington, Ill.	105 ft. deep
Main Shaft Cottonwood Coal Co., Lehigh, Montana	207 ft. deep

Hurley and West Frankfort shafts were new, the others were old shafts. GUN-CRETE LINING can be applied to OLD as well as NEW SHAFTS.

This class of work requires careful and experienced operators and can only be successfully done under the supervision of skilled specialists.

WE FIREPROOF YOUR SHAFT WITHOUT INTERRUPTION  
OF MINE OPERATIONS.





## GUN-CRETE IN TUNNELS



A tunnel driven thru rock which disintegrated under the influence of air and locomotive gases, was in this manner made permanently safe with an Impervious Coating of Reinforced GUN-CRETE of about two inches average thickness.

We also relined for the Northern Pacific R. R. Co. the Bozeman Tunnel near Livingston, Montana and the Mullen Tunnel near Helena, Montana.

The old brick and concrete linings were badly disintegrated and were restored to their original strength by skillful application of GUN-CRETE.

This shows some reconstruction of old sewers in St. Louis, Mo. in the summer of 1915.

For repair of disintegrated brick, stone and concrete masonry, GUN-CRETE has no equal.

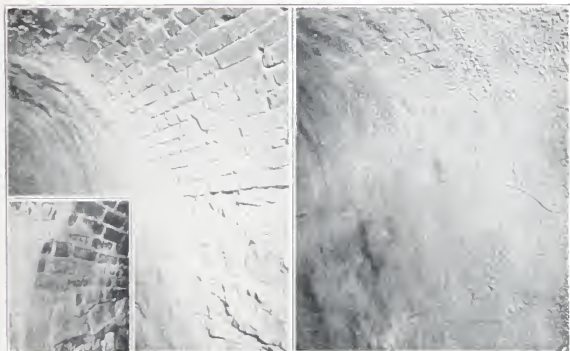


Fig. 1 Original Condition      Fig. 2 With Joints Cleaned      Fig. 3 Cement-Gun Finish and Troweled Surface



GUN-CRETE FOR PROTECTION

## GUN-CRETE LINING FOR COAL BUNKERS



Thirty two Coal Bunkers Lined with 2 inch of GUN-CRETE  
Minnesota Steel Company, Duluth, Minn.

### Partial List of GUN-CRETE Lined Bunkers

Haskell Barker Car Company, Michigan City, Ind.  
Commonwealth Edison Company, Chicago  
Minnesota Steel Company, Duluth, Minn.  
Schoenhofen Brewing Company, Chicago.  
Illinois Glass Company, Alton, Ill.  
City of Chicago (Pumping Stations), Chicago.  
Western Electric Company, Chicago.  
Ford Motor Co., Detroit, Michigan.  
.. .. (Repeat Order).  
Schoenhofen Brewing Co., (Repeat Order).  
Commonwealth Edison Co., Chicago (Repeat Order).  
Keeley Brewery Co., Chicago.  
and others.

A steel coal bin without GUN-CRETE lining is only half completed.

A two inch GUN-CRETE lining suitably reinforced with wire mesh can be applied to new or old bunkers with equal ease. In this way old bunkers even with walls perforated with rust, if the supports are strong enough can be repaired and made safe against further deterioration.

In this way we have saved many old bunkers that otherwise would have had to be rebuilt.

### HOW IT IS DONE





## Gun-crete Encasement for Timber Piles Against Teredos and Limnoria



1½ GUN CRETE Jacket applied to timber piles will protect them against the attack of wood borers of all kinds. Piles thus protected have been driven into hard ground with a heavy hammer and when pulled, the GUN-CRETE Jacket was found to be intact.

## Gun-crete Protection for Tanks



This shows one 16 gas purifier tanks with insulation in place. This insulation was applied by the Smith-Totman Co., Chicago and then covered by us with 1½" reinforced GUN-CRETE.

The temperature on the inside of the tanks remained practically constant, while the temperature of the external air fluctuated between wide limits depending on the weather.



APPEARANCE OF TANKS AFTER COMPLETION





## GUN-CRETE FOR PROTECTION



GUN-CRETE LUMBER SHEDS. 250 ft long by 100 ft. wide.  
Capacity of each 6,000,000 board ft.



### WHY?

Pay INSURANCE,  
Suffer a FIRE LOSS,  
Spend FORTUNE in  
PAINTING or  
REBUILD in  
FIVE YEARS,

### WHEN

at small additional  
cost you can build  
FIREPROOF and  
INDESTRUCTIBLE  
BUILDINGS.

THIS

IS HOW

WE

DO

IT →





STEWART & FRYER, PRINTERS  
735 FEDERAL STREET